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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,443	02/18/2004	Misty Azara	CQ10217	3457

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EXAMINER
GODBOLD, DOUGLAS

ART UNIT	PAPER NUMBER
2626	

NOTIFICATION DATE	DELIVERY MODE
08/05/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@sughrue.com
USPatDocketing@sughrue.com

Office Action Summary	Application No.	Applicant(s)	
	10/781,443	AZARA ET AL.	
	Examiner	Art Unit	
	DOUGLAS C. GODBOLD	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-11 and 13-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-11 and 13-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to correspondence filed May 23, 2008 in reference to application 10/781,443. Claims 1, 3-11, and 13-22 are pending in the application and have been examined.

Response to Amendment

2. The amendments filed May 23 have been accepted and considered in this office action. Claims 1, 3, 11, 13, 21, and 22 have been amended and claims 2 and 12 cancelled.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 11, 21 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims1, 3-11, and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shriberg et al. (Can Prosody Aid the Automatic Classification of Dialog Acts in Conversational Speech?), from hereon Shriberg1, in view of Chino (US

Patent 5,761,637) and further in view of Dahlback et al. (Empirical Studies of Discourse Representations for Natural Language Interfaces).

6. Consider claim 1, Shriberg1 teaches a method of determining a predictive model for discourse functions (abstract page 3) comprising the steps of:

determining a training corpus of speech utterances (page 7, speech data section discusses the training corpus);

determining discourse functions associated with the speech utterances in the training corpus, the discourse functions being determined based on a theory of discourse analysis (Pages 8-13, Dialog Act Labeling section discusses dialog act labeling and segmentation for the training corpus. It is inherent that in order to annotate discourse relations, and therefore analysis discourse, it must be based on some theory of discourse analysis);

determining prosodic features associated with the speech utterances in the training corpus (Page 14-18 teach collecting prosodic features for the training corpus); and

determining a predictive model of discourse functions by associating the prosodic features determined from the speech utterances in the training corpus with the discourse functions determined from the speech utterances in the training corpus (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data),

wherein the predictive model of discourse functions is operable to predict from prosodic features of a specific recognized speech, a likelihood that speech utterances of the specific recognized speech reflect a specific discourse function (prosody models are developed for use in DA classification, Abstract.).

Shriberg1 does not teach or suggest that discourse functions are determined automatically.

In the same field of discourse analysis, Chino teaches determining discourse functions automatically (Abstract, apparatus generates discourse structures automatically.)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use automatic discourse analysis as taught by Chino in order to allow for the removal of human interference in the training process.

Shriberg1 and Chino does not specifically teach:

wherein the predictive model of discourse functions is operable to predict a likelihood of a first portion of a speech utterance being associated with a command directed at an application and a second portion of the speech utterance being associated with content being provided to the application.

In the same field of discourse analysis, Dahlback teaches wherein the predictive model of discourse functions is operable to predict a likelihood of a first portion of a speech utterance being associated with a command directed at an application and a second portion of the speech utterance being associated with content being provided to the application (The discourse model is a reduced model for natural language interface

applications that includes query language command and other system input, page 292 "The Discourse Model," which would be command and content.).

Therefore it would have been obvious for the discourse model to be able to predict command and content as suggested by Dahlback using the discourse model of Shriberg1 and Chino in order to allow for accurate analysis and prediction of human-machine interactions.

7. Consider claim 3, Chino teaches the method of claim 2, wherein the theory of discourse analysis is at least one of: the Linguistic Discourse Model, the Unified Linguistic Discourse Model, Rhetorical Structure Theory, Discourse Structure Theory and Structured Discourse Representation Theory (Figure 7 shows a generated discourse structure for the speech input, column 6 line 13- column 7 line 28.)

8. Consider claim 4, Shriberg1 teaches the method of claim 1, in which the predictive models are determined based on at least one of: machine learning, rules (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data. Tree classifiers is machine learning.).

9. Consider claim 5, Shriberg1 teaches the method of claim 4, in which the machine learning based predictive models are determined based on at least one of: statistics, decision trees, Naive Bayes (page 19, Decision Tree Classifiers section).

10. Consider claim 6, Shriberg1 teaches the method of claim 1, in which the prosodic features occur in at least one of a location: preceding, within and following the associated discourse function (Page 14, Prosodic Features section paragraph 1, example is given on how feature F0 will change in an utterance, showing that it occurs within the discourse function.).

11. Consider claim 7, Shriberg1 teaches the method of claim 1, in which the prosodic features are encoded within a prosodic feature vector (Page 14-18 teach collecting prosodic features for the training corpus. Table 10 on page 22 shows a feature set used for classification).

12. Consider claim 8, Shriberg1 teaches the method of claim 7, in which the prosodic feature vector is a multimodal feature vector (Table 10 on page 22 shows a feature set used for classification.).

13. Consider claim 9, Shriberg1 teaches the method of claim 1, in which the discourse function is an intra- sentential discourse function (table 1 page 8 shows statements, which can be itra-sentential discourse.)

14. Consider claim 10, Shriberg1 teaches the method of claim 1, in which the discourse function is an intra- sentential discourse function (table 1 page 8 shows Questions, which can be Inter-sentential discourse.)

15. Consider claim 11, Shriberg1 teaches a system of determining a predictive model for discourse functions (abstract page 3) comprising the steps of:

an input/output circuit for retrieving a corpus of at least one speech utterance (page 7, speech data section discusses the training corpus, obvious it must be inputted.);

determining at least one discourse function associated with speech utterances in the training corpus (Pages 8-13, Dialog Act Labeling section discusses dialog act labeling and segmentation for the training corpus.);

A processor (inherent in prosodic feature extraction and decision tree modeling) for:

determining prosodic features associated with the speech utterances in the training corpus (Page 14-18 teach collecting prosodic features for the training corpus); and

determining a predictive model of discourse functions by associating the prosodic features determined from the speech utterances in the training corpus with the discourse functions determined from the speech utterances in the training corpus (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data),

wherein the predictive model of discourse functions is operable to predict from prosodic features of a specific recognized speech, a likelihood that speech utterances of

the specific recognized speech reflect a specific discourse function (prosody models are developed for use in DA classification, Abstract.).

Shriberg1 does not specifically teach a processor for determining at least one discourse function associated with the speech utterances.

However, In the same field of Discourse analysis, Chino teaches a processor for determining at least one discourse function associated with the speech utterances in the training corpus, the discourse function being determined automatically based on a theory of discourse analysis (figure 1, collumn4 line 50, shows a conversation discourse apparatus. It is inherent that in order to annotate discourse relations, and therefore analysis discourse, it must be based on some theory of discourse analysis).

Therefore it would be obvious to combine the machine discourse analysis as taught by Chino with the modeling system of Shriberg1 in order to eliminate the need for human intervention in the model training process.

Shriberg1 and Chino does not specifically teach:

wherein the predictive model of discourse functions is operable to predict a likelihood of a first portion of a speech utterance being associated with a command directed at an application and a second portion of the speech utterance being associated with content being provided to the application.

In the same field of discourse analysis, Dahlback teaches wherein the predictive model of discourse functions is operable to predict a likelihood of a first portion of a speech utterance being associated with a command directed at an application and a second portion of the speech utterance being associated with content being provided to

the application (The discourse model is a reduced model for natural language interface applications that includes query language command and other system input, page 292 "The Discourse Model," which would be command and content.).

Therefore it would have been obvious for the discourse model to be able to predict command and content as suggested by Dahlback using the discourse model of Shriberg1 and Chino in order to allow for accurate analysis and prediction of human-machine interactions.

16. Consider claim 13, Chino teaches the system of claim 12, wherein the theory of discourse analysis is at least one of: the Linguistic Discourse Model, the Unified Linguistic Discourse Model, Rhetorical Structure Theory, Discourse Structure Theory and Structured Discourse Representation Theory. (Figure 7 shows a generated discourse structure for the speech input, column 6 line 13- column 7 line 28.)

17. Consider claim 14, Shriberg1 teaches the system of claim 11, in which the predictive models are determined based on at least one of: machine learning, rules (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data. Tree classifiers is machine learning.).

18. Consider claim 15, Shriberg1 teaches the system of claim 14, in which the machine learning based predictive models are determined based on at least one of: statistics, decision trees, Naive Bayes (page 19, Decision Tree Classifiers section).

19. Consider claim 16, Shriberg1 teaches the system of claim 11, in which the prosodic features occur in at least one of a location: preceding, within and following the associated discourse function (Page 14, Prosodic Features section paragraph 1, example is given on how feature F0 will change in an utterance, showing that it occurs within the discourse function.).

20. Consider claim 17, Shriberg1 teaches the system of claim 11, in which the prosodic features are encoded within a prosodic feature vector (Page 14-18 teach collecting prosodic features for the training corpus. Table 10 on page 22 shows a feature set used for classification).

21. Consider claim 18, Shriberg1 teaches the system of claim 17, in which the prosodic feature vector is a multimodal feature vector (Table 10 on page 22 shows a feature set used for classification.).

22. Consider claim 19, Shriberg1 teaches the system of claim 11, in which the discourse function is an intra- sentential discourse function (table 1 page 8 shows statements, which can be itra-sentential discourse.)

23. Consider claim 20 Shriberg1 teaches the system of claim 11, in which the discourse function is an intra- sentential discourse function (table 1 page 8 shows Questions, which can be Inter-sentential discourse.)

24. Consider claim 21, Shriberg1 teaches an apparatus operable to generate a carrier wave encoded to transmit a control program, useable to program a computer to determine a predictive model for discourse functions, to a device for executing the program,(abstract page 3. generating a carrier wave would be inherent if a computer is used, as one must be generated form the memory to execute instructions.) the control program comprising instructions for:

determining prosodic features associated with speech utterances in a training corpus of speech utterances (Page 14-18 teach collecting prosodic features for the training corpus); and

determining discourse functions associated with the speech utterances in the training corpus of speech utterances, the discourse functions being determined based on a theory of discourse analysis (Pages 8-13, Dialog Act Labeling section discusses dialog act labeling and segmentation for the training corpus. It is inherent that in order to annotate discourse relations, and therefore analysis discourse, it must be based on some theory of discourse analysis. page 7, speech data section discusses the training corpus);

determining a predictive model of discourse functions by associating the prosodic features with the discourse functions (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data),

wherein the predictive model of discourse functions is operable to predict from prosodic features of a specific recognized speech, a likelihood that speech utterances of the specific recognized speech reflect a specific discourse function (prosody models are developed for use in DA classification, Abstract.).

Shriberg1 does not teach or suggest that discourse functions are determined automatically.

In the same field of discourse analysis, Chino teaches determining discourse functions automatically (Abstract, apparatus generates discourse structures automatically.)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use automatic discourse analysis as taught by Chino in order to allow for the removal of human interference in the training process.

Shriberg1 and Chino does not specifically teach:

wherein the predictive model of discourse functions is operable to predict a likelihood of a first portion of a speech utterance being associated with a command directed at an application and a second portion of the speech utterance being associated with content being provided to the application.

In the same field of discourse analysis, Dahlback teaches wherein the predictive model of discourse functions is operable to predict a likelihood of a first portion of a

speech utterance being associated with a command directed at an application and a second portion of the speech utterance being associated with content being provided to the application (The discourse model is a reduced model for natural language interface applications that includes query language command and other system input, page 292 "The Discourse Model," which would be command and content.).

Therefore it would have been obvious for the discourse model to be able to predict command and content as suggested by Dahlback using the discourse model of Shriberg1 and Chino in order to allow for accurate analysis and prediction of human-machine interactions.

25. Consider claim 22, Shriberg1 teaches Computer readable storage medium comprising: computer readable program code embodied on the computer readable storage medium, the computer readable program code usable to program a computer to determine a predictive model for discourse functions (abstract page 3. generating a carrier wave would be inherent if a computer is used, as one must be generated form the memory to execute instructions.) comprising the steps of:

determining a training corpus of speech utterances (page 7, speech data section discusses the training corpus);

determining discourse functions associated with speech utterances in the training corpus of speech utterances, the discourse functions being determined based on a theory of discourse analysis (Pages 8-13, Dialog Act Labeling section discusses dialog act labeling and segmentation for the training corpus. It is inherent that in order to

annotate discourse relations, and therefore analysis discourse, it must be based on some theory of discourse analysis);

determining prosodic features associated with the speech utterances in the training corpus of speech utterances (Page 14-18 teach collecting prosodic features for the training corpus); and

determining a predictive model of discourse functions by associating the prosodic features with the discourse function (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data),

wherein the predictive model of discourse functions is operable to predict from prosodic features of a specific recognized speech, a likelihood that speech utterances of the specific recognized speech reflect a specific discourse function (prosody models are developed for use in DA classification, Abstract.).

Shriberg1 does not teach or suggest that discourse functions are determined automatically.

In the same field of discourse analysis, Chino teaches determining discourse functions automatically (Abstract, apparatus generates discourse structures automatically.)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use automatic discourse analysis as taught by Chino in order to allow for the removal of human interference in the training process.

Shriberg1 and Chino does not specifically teach:

wherein the predictive model of discourse functions is operable to predict a likelihood of a first portion of a speech utterance being associated with a command directed at an application and a second portion of the speech utterance being associated with content being provided to the application.

In the same field of discourse analysis, Dahlback teaches wherein the predictive model of discourse functions is operable to predict a likelihood of a first portion of a speech utterance being associated with a command directed at an application and a second portion of the speech utterance being associated with content being provided to the application (The discourse model is a reduced model for natural language interface applications that includes query language command and other system input, page 292 "The Discourse Model," which would be command and content.).

Therefore it would have been obvious for the discourse model to be able to predict command and content as suggested by Dahlback using the discourse model of Shriberg1 and Chino in order to allow for accurate analysis and prediction of human-machine interactions.

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS C. GODBOLD whose telephone number is (571)270-1451. The examiner can normally be reached on Monday-Thursday 7:00am-4:30pm Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DCG

/Patrick N. Edouard/
Supervisory Patent Examiner, Art Unit 2626